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STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P. O. BOX 621
HONOLULU, HAWAII 96809

REF:LD/WL-NW

FEB 28 2002

Mr. Louis Watson
1708 Ferndale Circle
West Sacramento, California 95691

Dear Mr. Watson:

Building Materials from Volcanic Magma

We are responding to your facsimile inquiry of February 16, 2002, regarding your interest in building materials from volcanic magma.

As indicated in the Department of Land and Natural Resources' (DLNR) February 12, 2001, and May 24, 2001, letters responding to your prior inquiries, implementation of your proposals would require further agency review as to required permits and approvals as project specifics are determined. As the developer, you need to provide further details of your proposal and are responsible to prepare any environmental assessments. The DLNR as a regulator requires specific site location(s) before further review to determine if development of your proposals requires permits and approvals within or outside of the DLNR's jurisdiction, necessitating consultation with Federal, County and other State agencies.

Sincerely,

GILBERT COLOMA-AGARAN

TEL 916-371-1383
FAX: 916-371-4874

Fax 3Pco

Pele's Products & Power

To:	Andrew Monden, L&NR	**From**	**Lou Watson**
Fax:	1-808-587-0283	**Date:**	**2-16-02**
Phone:	1-808-587-0230	**Pages:**	**This page plus 3**
Re:	Building Materials from Volcanic Magma		

Dear Mr. Monden,

My wife is her old self again and it is wonderful if not completely understood.

I am faxing you a draft of the 1) "PUBLICATION FORM". and a draft of the 2) "PROJECT SUMMARY" As I understand the instructions that I accessed from the website per your fax, the 3) "TRANSMITTAL LETTER" comes from the lead agency LAND & NATURAL RESOURCES (probably you). I am not sure by whom or how the "EA" (ENVIRONMENTAL ASSESSMENT) document is generated.

I await your instruction, I wish to take the time to do it right.

Very truly yours, Lou Watson

Office of Environmental Quality Control
The Environmental Notice **PUBLICATION FORM** (digital version 6 98)

1. Project Name: PELE'S PROJECTS
Island: HAWAII and NEW SOUTH ISLAND (Name?)
District: MAY VARY
Tax Map Key Number: MAY VARY

2. Type of Action: ___agency action _X_application action
Type of Document: _X_draft EA __final EA __draft EIS __final EIS __Other
Legal Authority: _X_ State Law (HRS3443)
Applicable sections:
_X_use of state or county lands or funds
___use of conservation district lands
_X_use of shoreline area
___use of historic site or district
___use of land in the Waikiki district
_X_amendment to county general plan
_X_reclassification of conservation lands
___construction or modifications to helicopter facilities
_X_Federal law (NEPA)
_X_County law (ROH CH. 25 or other ordinance
_X_Other: Depends on vent location and magma path to ocean

Agency determination; ___Anticipated FONZI ___FONZI
___EIS Prep. Notice ___Final EIS Acceptance

3. Proposing agency or Applicant: PELE'S PRODUCTS
Address: 1708 Ferndale Circle, West Sacramento CA, 95691
Contact: Lou Watson
Phone: 916-371-1383

4. Approving Agency or Accepting Authority: Dept. of Land & Natural Resources
Address: P.O. Box 73, Honolulu, HI. 96809
Contact: Andrew Monden, Engineering Branch
808-587-0230

5. Consultant: NONE AT THIS TIME
Address:
Contact:
Phone:

6.: Public Comment Deadline: TO BE DETERMINED
Permits required prior to implementation: TO BE DETERMINED
Project Summary (name of file on attached disc) PELE'S PRODUCTS
Public Library where document will be available HAWAII STATE LIBRARY
This form prepared by: LOU WATSON
Phone: 916-371-1383 ::

PROJECT SUMMARY – PELE'S PRODUCTS

.1. Volcanic magma will be directed into molds and machinery on barges or on land to make building materials, using US Patent 6,140,855. (See attached product list and patent).

2. The Hawaiian Islands are still being built by magma flowing from the mid pacific rift over millions of years and it is not predictable where and when subsequent flows will occur. Therefore, permitting should be flexible or general to allow a positive outcome for any district where a new flow impacts the environment.

3. The environmental impact of the magma flow itself; burning down forests and buildings, covering roads and arable property with lava and noxious fumes is projected to be far more than any impact of converting the magma to useful building materials and transporting these materials away.

4. Historically, Kilauea flows 60% of the time. Flow rate varies so the flow does not always reach the ocean; Even so, conversion of the magma to building materials should be profitable. When the flow is great to the ocean, it is projected that barges can be made of magma, in molds, to carry the products all over the world. The patent also envisions utilizing the magma flow from the new island, rising below sea level, south of the island of Hawaii.

5. Although magma flow has not been controlled in Hawaii, Pele's Products has the knowledge to do just that, minimizing destruction to the infrastructure and the environment.

TEL 916-371-1383
FAX: 916-371-4874

Fax 3Pco

Pele's Products & Power

To:	Andrew Monden. L&NR	**From**	**Lou Watson**
Fax:	1-808-587-0283	**Date:**	**2-17-02**
Phone:	1-808-587-0230	**Pages:**	**This page plus 3**
Re:	Building Materials from Volcanic Magma		

Dear Mr. Monden,

I believe that you have a copy of the patent and list of products but since I mention them as being attached in the "PROJECT SUMMARY", I am sending copies on to you.

I will also send McPhee's account of cooling the lava in Iceland. Powerful solutions to directing the magma flows in Hawaii are evident. Using the flowing magma itself, wing dams can be constructed to channel the vents to a magma duct that is constructed upon cooled layers at a gradient for good flow to a point where barges with molds and forming machinery can be fed by gravity

I await your instruction, I wish to take the time to do it right.

Very truly yours, Lou Watson

3P INC

PELE'S PRODUCTS AND POWER

LIST OF PRODUCTS

1. Floor tile
2. Wall tile
3. Sidewalk pavers
4. Curb and gutter sections
5. Median curb sections
6. Median crash walls
7. Parking bumpers
8. Street paving bricks
9. Lamp posts
10. Power poles
11. Guard rail posts
12. Railroad ties
13. Manholes
14. Drop inlets
15. Subterranean vaults
16. Septic tanks
17. Storm drain pipe
18. Sewer pipe
19. Water mains
20. Piling
21. Floors
22. Walls
23. Roofs
24. Breakwater units
25. Harbor work, wharfs
26. Barges, floats
27. Drilling platforms
28. Floating oil storage
29. Batt insulation
30. Strand board
31. Fiberglass roving, cloth
32. Foamed (light) magma products
33. Foam flotation
34. Brick
35. Hollow block
36. Fence units
37. Hot road paving
38. Sheet piling
39. Beams
40. Arches
41. Electric power
42. Highway lane slabs

US006149855A

United States Patent [19]

Watson

[11] Patent Number: 6,149,855

[45] Date of Patent: *Nov. 21, 2000

[54] **METHOD OF MANUFACTURING A BUILDING MATERIAL FROM VOLCANIC MAGMA**

[76] Inventor: **Louis L. Watson**, 1708 Ferndale Cir., West Sacramento, Calif. 95691

[*] Notice: This patent issued on a continued prosecution application filed under 37 CFR 1.53(d), and is subject to the twenty year patent term provisions of 35 U.S.C. 154(a)(2).

[21] Appl. No.: **08/281,520**

[22] Filed: **Jul. 28, 1994**

[51] **Int. Cl.**[7] **C04B 35/653**; B28B 7/10

[52] **U.S. Cl.** **264/334**; 264/31; 264/33; 264/299; 264/332

[58] **Field of Search** 264/332, 31, 33, 264/299, 334

[56] **References Cited**

PUBLICATIONS

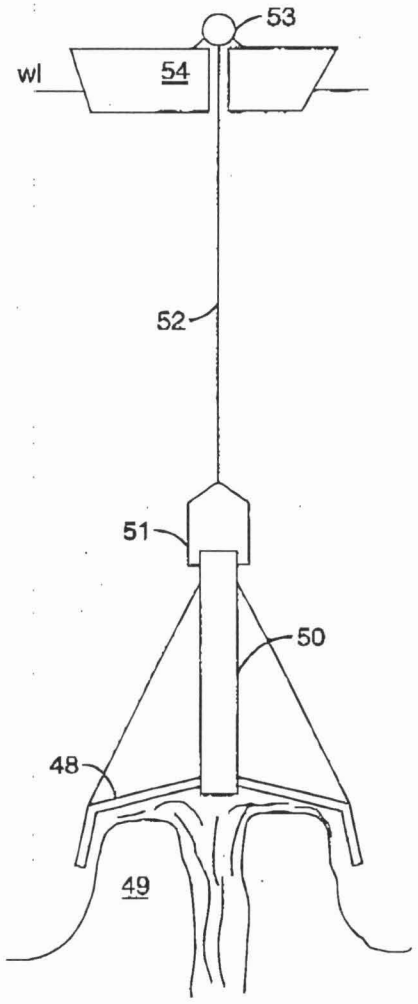
JP Abstract 04–203026 (Corresp. to App No. 02–334437) Abstract Published Nov. 1992.
J.D. Griggs, U.S. Geological survey, Apr. 1989.

Primary Examiner—Christopher A. Fiorilla
Attorney, Agent, or Firm—John P. O'Banion

[57] **ABSTRACT**

A method of manufacturing a building material includes the steps of directing molten volcanic magma from an underwater volcanic magma vent to a level above sea level via a tube formed from the magma; directing the molten volcanic magma into a mold on a floating barge; cooling the magma in the mold to form a building material; and removing the building material from the mold. The tube is formed by lowering a cap assembly over an underwater flowing volcanic magma vent and raising the cap such that the magam solidifies inside the cap perimeter where it is cold.

1 Claim, 5 Drawing Sheets



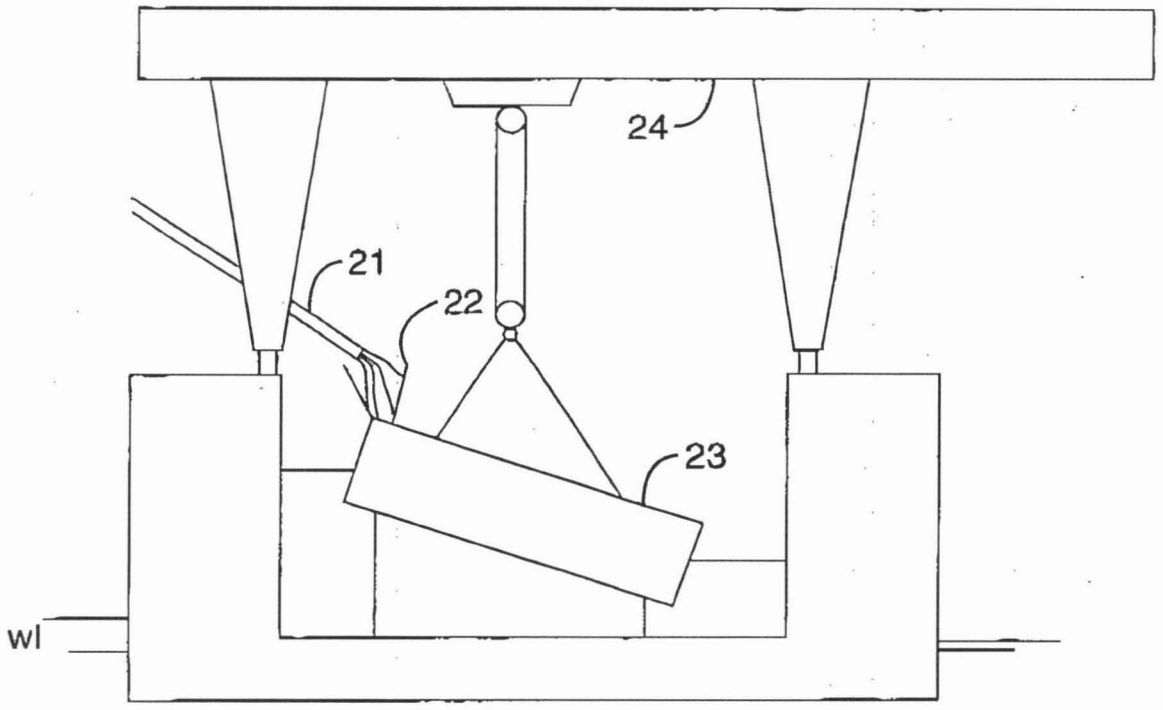


FIG. 1

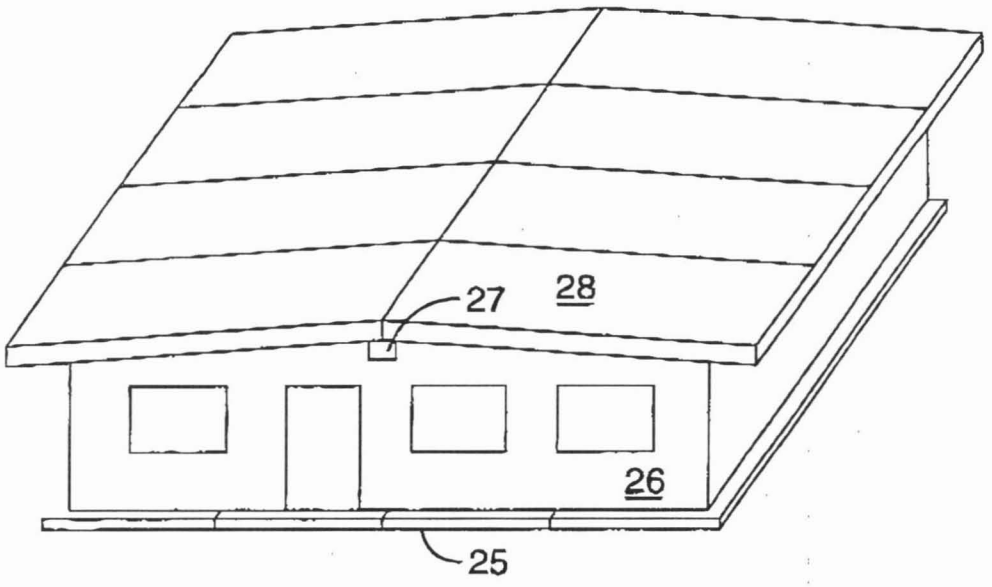


FIG. 2

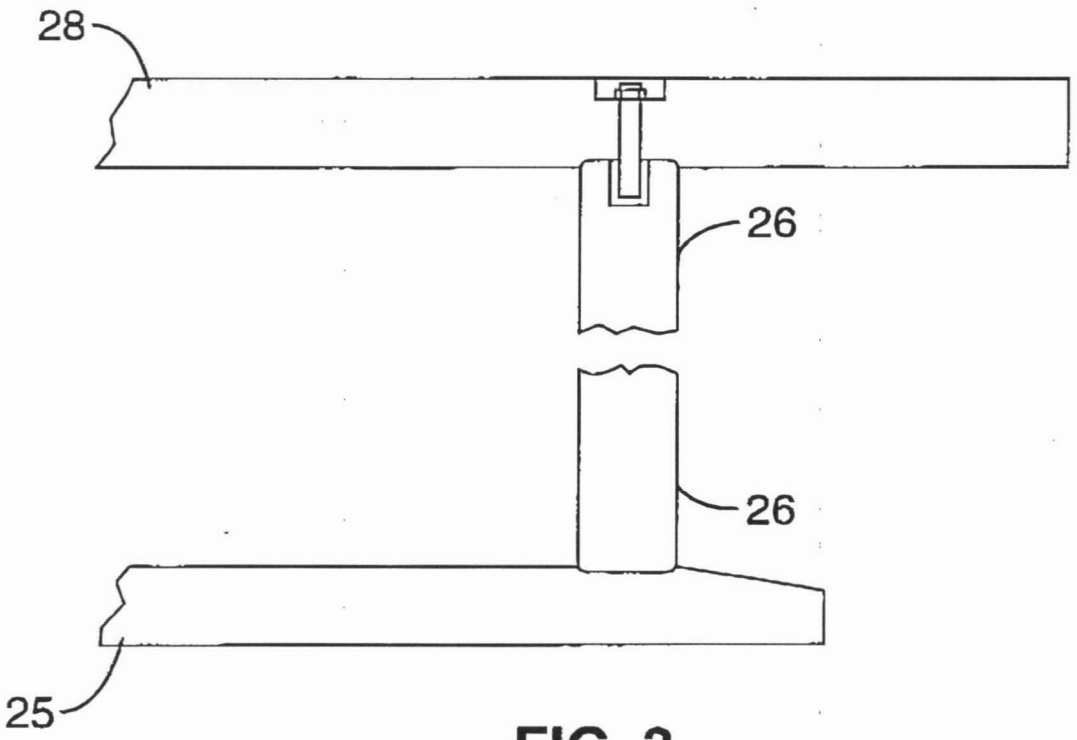


FIG. 3

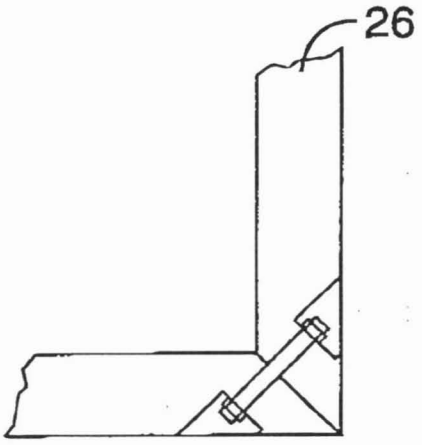


FIG. 4

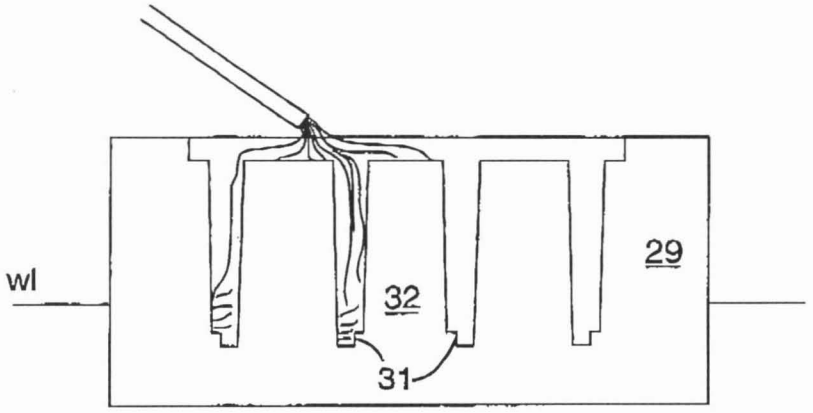


FIG. 5

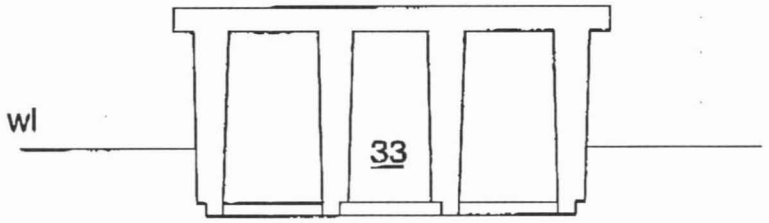


FIG. 6

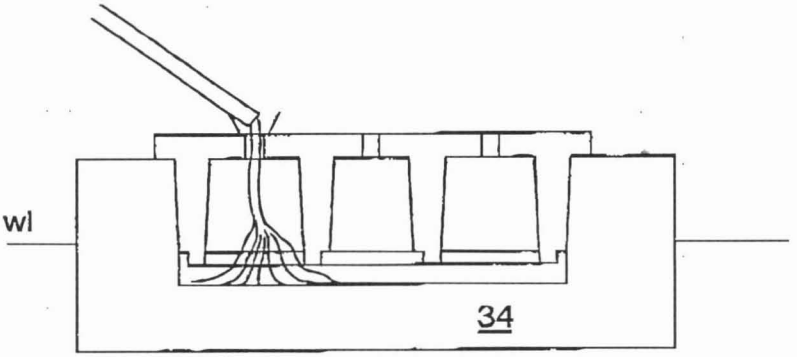


FIG. 7

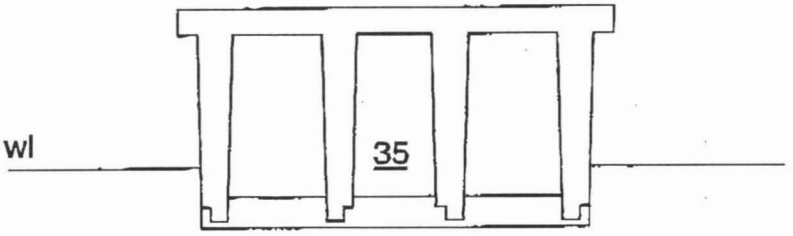


FIG. 8

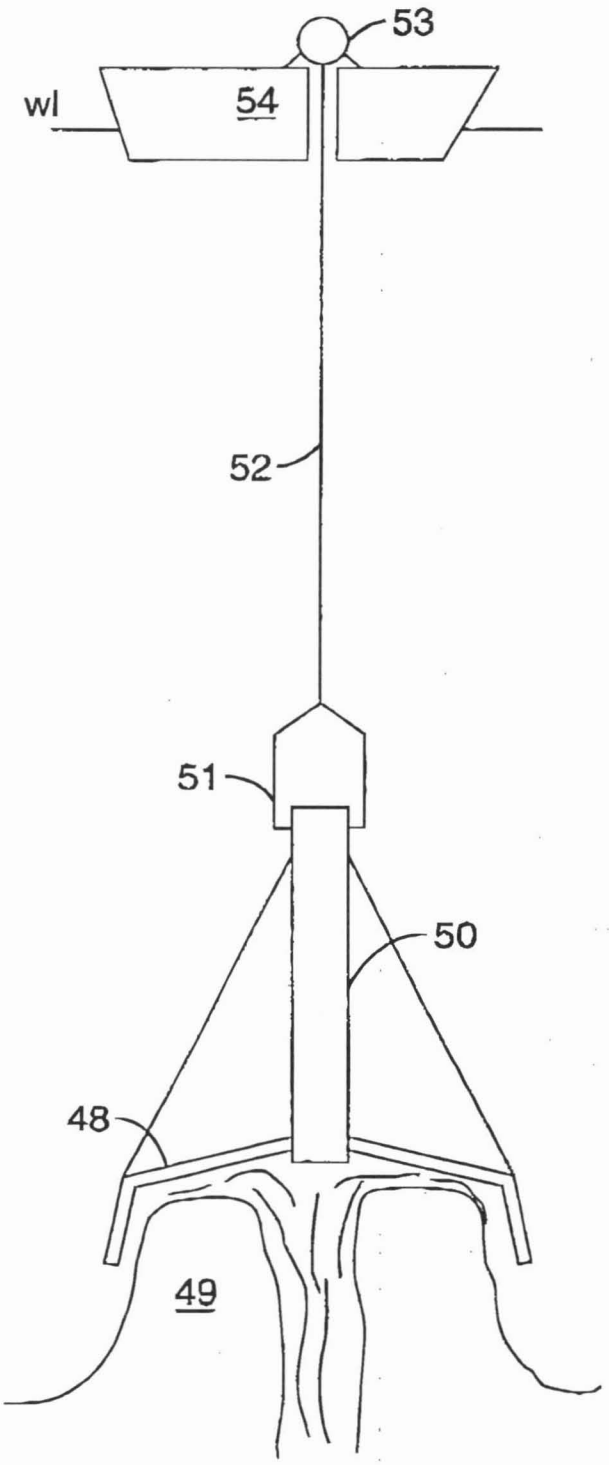


FIG. 9

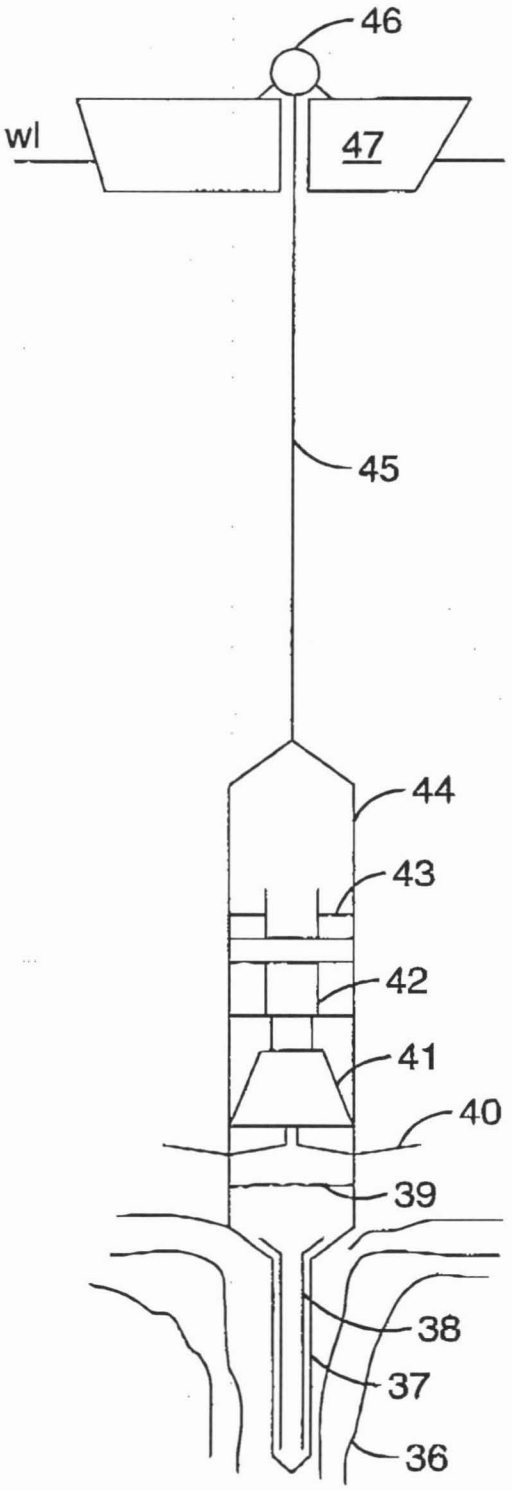


FIG. 10

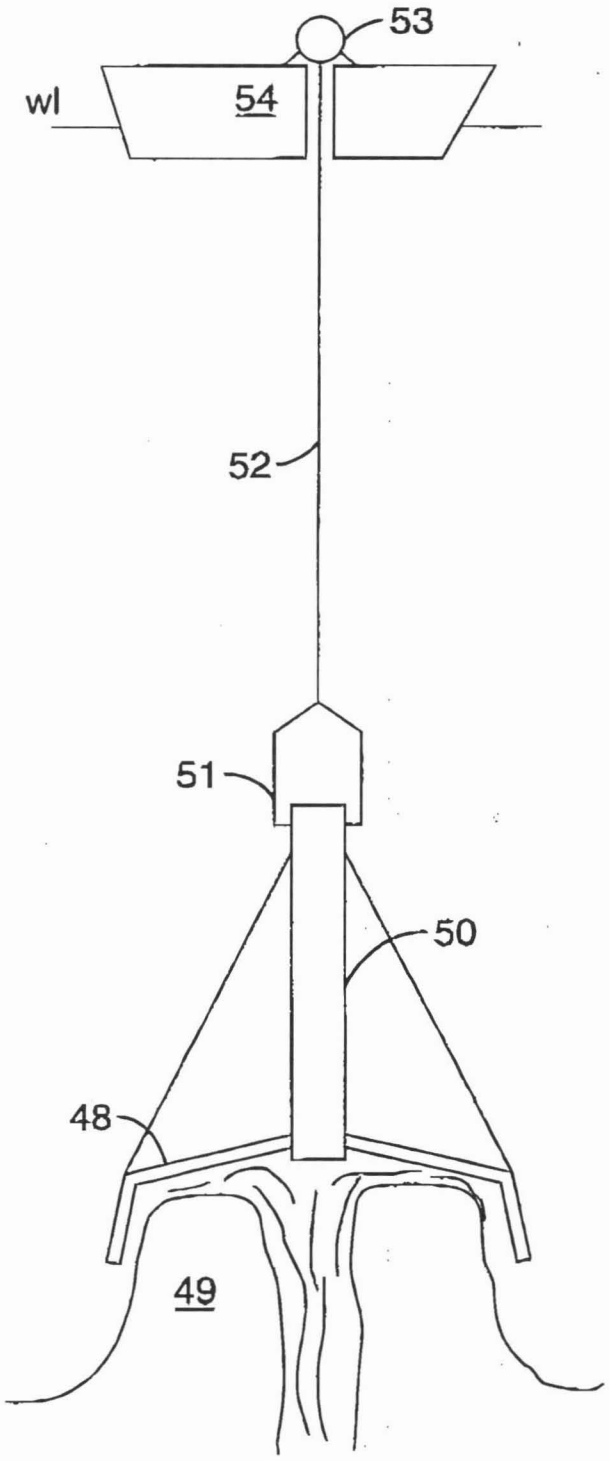


FIG. 9

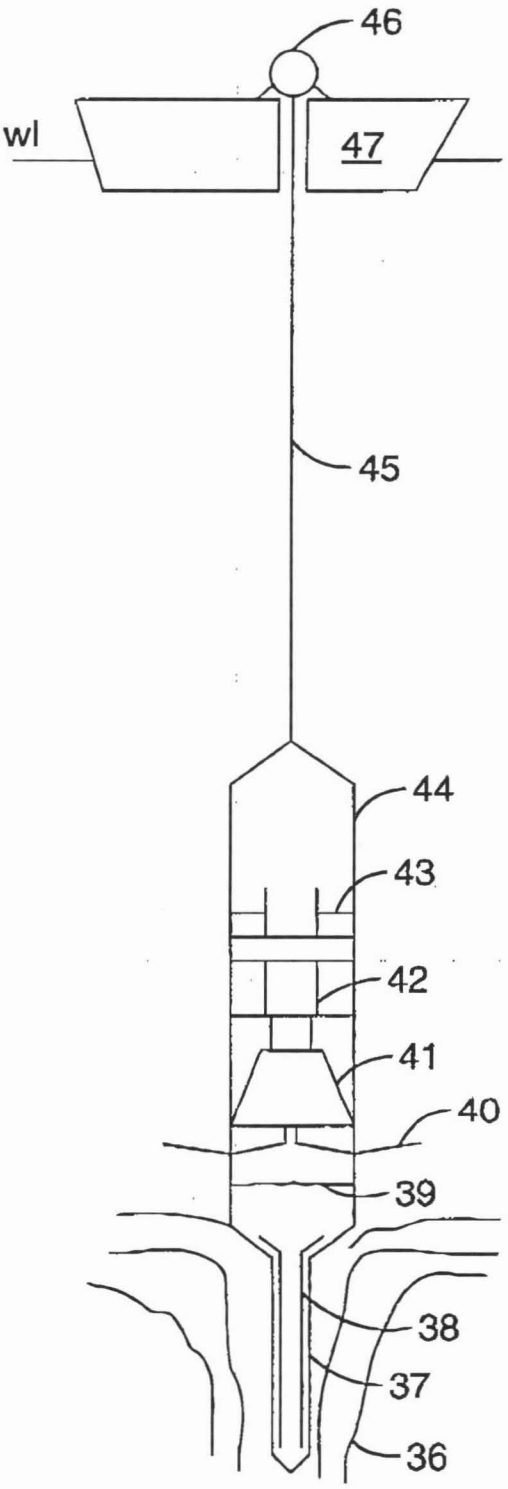


FIG. 10

METHOD OF MANUFACTURING A BUILDING MATERIAL FROM VOLCANIC MAGMA

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention pertains generally to building materials and their method of manufacture, and more particularly to using flowing volcanic magma to make structures and material that is ordinarily made of wood, brick, stone, steel, concrete, glass and other materials, as well as to generate electricity.

2. Description of the Background Art

In the past, structures have been made of wood, brick, stone, concrete, steel glass, plastic and other materials. Electricity has been generated by the use of geothermal, sun, nuclear and fossil fuel heat sources. Flowing volcanic magma is not known to have been used to produce building materials or electricity.

The main disadvantage of the prior materials and heat sources is the high cost to produce the raw materials, the refining costs plus transportation to manufacturing site. Geothermal heat depletes, the sun doesn't always shine, and nuclear plants have a special safety requirement cost.

Volcanic magma has been flowing almost continuously somewhere in the world from earliest times and will continue to do so for millennia to come. It is uncontrollable: nothing can stop it from erupting through the earth's surface. It has been useless at best and terribly destructive to life and property at its worst.

Therefore, there is a need for a method to tap flowing volcanic magma at low cost and to utilize this natural resource to produce many things, including electricity. The present invention satisfies that need, as well as others.

SUMMARY OF THE INVENTION

In accordance with the present invention, flowing volcanic magma is directed into molds or machinery in the fluid state to produce barges, wharves, breakwaters, fences, sound barriers, road paving, pipe, floors, walls, roofs, building block, structural foam, batt insulation, insulating board and fiber strand reinforcement for plastics, as well as used as a heat source for the generation of electricity.

A main advantage of this invention is that many products can now be made with little or no material cost.

Another advantage of this invention is that magma is stronger and more resistant to chemical attack than concrete.

An important advantage of this invention is that it can be used to generate electricity at very low cost.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will be more fully understood by reference to the following drawings which are for illustrative purposes only, and where like reference numbers denote like parts;

FIG. **1** is a cross-sectional view of a magma casting facility according to the present invention.

FIG. **2** shows a perspective view of a dwelling constructed of precast parts made in the casting facility shown in FIG. **1**.

FIGS. **3** and **4** show cross-sectional views of the joints and fastenings in the dwelling shown in FIG. **2**.

FIGS. **5** through **8** show a sequence in cross-section of a barge construction method according to the invention.

FIG. **9** is a cross-sectional view showing a method of building a giant lava chimney over an underwater vent according to the invention.

FIG. **10** shows in cross-section an underwater generator according to the invention.

FIG. **11** shows views of a flowing volcanic magma heated vertical boiler according to the invention.

FIG. **12** is a cross-section of the flowing volcanic magma heated vertical boiler shown in FIG. **11** taken through line **12**—**12**.

DESCRIPTION OF PREFERRED EMBODIMENTS

Referring more specifically to the drawings, for illustrative purposes the present invention is embodied in the apparatus generally shown in FIG. **1** through FIG. **12**. It will be appreciated that the apparatus may vary as to configuration and as to details of the parts, and that the method may vary as to the specific steps and sequence, without departing from the basic concepts as disclosed herein.

FIG. **1** shows a flowing volcanic magma casting facility in cross-section. Flowing volcanic magma is gated down an insulated delivery tube **21** to trough **22** which is continuous along the top corner of ganged, inclined slab molds **23**. Molds **23** have water filled, hollow steel spacers between the faces of the slabs (not shown) to keep the steel from getting too hot and generate steam for additional use at the same time. Overhead traveling crane **24** inserts reinforcing, shuttering; helps close the molds; helps direct delivery tube **21**; opens molds and removes the precast units to storage.

FIG. **2** shows a perspective view of a dwelling constructed of precast panels made in the casting facility FIG. **1**. It is assembled from four floor slabs **25**; five wall slabs **26**, one beam **27** and eight roof slabs **28**. They are bolted at the joints as shown in FIGS. **3** and **4**.

FIG. **5** shows a cross section of a floating mold **29** that defines the deck **30**, sides **31** and ends (not shown) that is being filled with flowing volcanic magma. Reference number **32** indicates bulkheads (longitudinal and transverse).

FIG. **6** shows a cross-sectional view of the part **33** just cast in FIG. **5**. It is supported by trapped air.

FIG. **7** shows a cross-sectional view of a drydock **34** supporting part **33** by the deck overhang so that its skirts are above the floor of the drydock **34** and will be engaged by the closing pour.

FIG. **8** shows the completed barge **35** floated out of the drydock **34**.

FIG. **9** is a cross-sectional view showing a method of building a giant lava tube to the ocean surface and above from an underwater flowing volcanic magma vent. A steel slip form cap assembly **48** is lowered over the flowing volcanic magma vent **49**. The diameter of **48** is a function of the flowing volcanic magma flow rate and cooling rate. The flowing volcanic magma raises the cap and solidifies inside the perimeter where it is cold. The direction of growth can be changed by pulling up and sideways on riser **50** by use of the cable **52**, its winch **53** and using thrusters or anchors on vessel **54**. Flotation chamber **51** also helps hold the assembly upright.

When the lava tube has risen well above sea level, magma can be directed into molds and otherwise processed in various barges surrounding the magma chimney island.

FIG. **10** shows in cross-section, an underwater generator system. Volcanic magma is flowing from an underwater vent **36**. A coaxial boiler tube **37** is inserted into the magma. A

propeller **38**, driven by the turbine **41** aids circulation of the boiler water. Just above the steam chest **39** is a collar **40** to limit penetration of the probe. The steam turbine **41** drives the generator **42** and the feed water trap **43** collects the condensate from the condenser **44**. A cable **45** and winch **46** on vessel **47** position the underwater generator. Power cables (not shown) could go ashore underwater.

FIG. **11** and FIG. **12** show a flowing volcanic magma heated vertical boiler that could be especially efficient where a good vertical drop is possible in the magma flow. Flowing volcanic magma enters at lava tube **52** and flows across and down through a grate of boiler header tubes **53** that are slightly larger in diameter and therefore closer together than the vertical boiler tubes **55**. Solids that cannot pass the grate **53** as well as excess magma flow will be forced through gate **54**. Boiler sides **56** can move in or out to help control flow and to allow access to the tubes. Circulation of water and steam to the steam chest **57** and heat transfer will be enhanced because this is a counter flow heat exchanger.

Accordingly, it can be seen that the present invention is directed to harnessing and using flowing volcanic magma in ways that have not been used before. Although the description above contains many specificities, these should not be construed as limiting the scope of the invention but as merely providing illustrations of some of the presently preferred embodiments of this invention. Thus the scope of this invention should be determined by the appended claims and their legal equivalents. Therefore, it will be appreciated that the scope of the present invention fully encompasses other embodiments which may become obvious to those skilled in the art, and that the scope of the present invention

is accordingly to be limited by nothing other than the appended claims, in which reference to an element in the singular is not intended to mean "one and only one" unless explicitly so stated, but rather "one or more." All structural, chemical, and functional equivalents to the elements of the above-described preferred embodiment that are known to those of ordinary skill in the art are expressly incorporated herein by reference and are intended to be encompassed by the present claims. Moreover, it is not necessary for a device or method to address each and every problem sought to be solved by the present invention, for it to be encompassed by the present claims. Furthermore, no element, component, or method step in the present disclosure is intended to be dedicated to the public regardless of whether the element, component, or method step is explicitly recited in the claims. No claim element herein is to be construed under the provisions of 35 U.S.C. 112, sixth paragraph, unless the element is expressly recited using the phrase "means for."

What is claimed is:

1. A method of manufacturing a building material, comprising:

directing molten volcanic magma from an underwater volcanic magma vent to a level above sea level via a tube formed from the magma;

directing the molten volcanic magma into a mold located on a floating barge;

cooling the magma in the mold to form a building material; and

removing the building material from the mold.

* * * * *

Prosecution of this patent is continuing with multiple claims pending concerning the use of magma obtained from land vents.